

having a laminate structure comprising adjacent films, of different ionization tendencies, of an Al alloy film and a refractory metal film, on a semiconductor substrate, whereby electrolytic corrosion could be generated and accelerated due to battery action between films of the laminate, including said adjacent films, comprising the steps of:

(i) etching said semiconductor sample having said laminate structure, using a resist mask, by means of a first plasma formed in a first gas with first processing conditions while applying radio-frequency bias power to the sample, residual corrosive compounds being left on the sample after the etching,

(ii) after step (i), ashing the sample by means of a second plasma to remove at least the resist mask and said residual corrosive compounds formed in step (i), said second plasma being formed in a second gas and with second processing conditions, said ashing being carried out at a second location different from a first location where said etching is carried out, and wherein the semiconductor sample having the laminate is transferred from said first location to said second location through a chamber forming an atmosphere having a pressure reduced from atmospheric pressure,

(iii) contacting a surface of said sample etched in step (i) and ashed in step (ii) with at least one liquid which effects at least one of (a) removal of said residual corrosive compounds formed in step (i) which were not removed in step (ii) and (b) passivation of said surface etched in step (i) and ashed in step (ii), and

(iv) after step (iii), drying the sample,

wherein steps (i) - (iv) are performed using a single sample processing

DI cont. apparatus.

27. (Three Times Amended) A method of processing a semiconductor sample having a laminate of adjacent layers of an Al alloy layer and a refractory metal layer on a semiconductor substrate and a resist mask formed on said laminate, said adjacent layers having different ionization tendencies from each other, whereby corrosion could be generated and accelerated by electrolytic corrosion due to battery action between layers of the laminate, including said adjacent layers having different ionization tendencies from each other, comprising the steps of:

S2 (i) etching said layers of said laminate through said resist mask, by means of a first plasma, so as to form an etched sample having an etched shape which corresponds to a pattern of said resist mask, while applying radio-frequency bias power to the sample, residual corrosive compounds from the etching being left on the etched sample;

(ii) after step (i), treating the etched sample by means of a second plasma, to remove said residual corrosive compounds formed in step (i) and to remove said resist mask, said treating being carried out at a second location different from a first location where said etching is carried out, and wherein the semiconductor sample having the laminate is transferred from said first location to said second location through a chamber forming an atmosphere having a pressure reduced from atmospheric pressure;

(iii) contacting a surface of said semiconductor sample etched in step (i) and treated in step (ii) with at least one liquid, to remove said residual corrosive

compounds which were not removed in step (ii); and

(iv) after step (iii), drying the semiconductor sample,

wherein the steps (i) - (iv) are performed in a single sample processing apparatus.

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Please add the following new claims to the application:

~~67.~~ A method according to claim 8, wherein the residual corrosive compounds left on the etched sample, after the etching, includes residual corrosive compounds left in material of the resist mask remaining on the etched sample.

~~68.~~ A method according to claim 27, wherein the residual corrosive compounds left on the etched sample, after the etching, includes residual corrosive compounds left in material of the resist mask remaining on the etched sample/-
